

Dividends Persistence and Earnings Management in Latin American Capital Markets

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Abstract

We investigated the relationship between dividends persistence and earnings management in companies traded in the main Latin American stock markets. Based on the Dividend Relevance Theory and the Bird-in-Hand Theory, we used quantile regression models to control the heteroskedasticity problems that were identified in our sample. We used the Lintner (1956) model to interact the dividends persistence with earnings management (discretionary accruals) identified by Dechow, Hutton, Kim and Sloan (2012) model. Our sample consisted of 364 companies, from 2001 to 2015, in a total of 1,532 firm-year observations. Our main results indicates that dividends persistence was not influenced by the level at which companies manage their earnings, but that it was influenced by Return on Equity (ROE), growth opportunities (market-to-book), indebtedness and companies size. However, these relationships change from quantile to quantile in our regressions. Still on the dividends persistence, we noticed that firms' payout ratio are persistent in all quantiles analyzed. We also found that in the presence of higher level of earnings management payout ratio are more persistent - though this result was found only in those firms that distribute more dividends (quantiles 0.50 and 0.75). Thus, we conclude that there is evidence of dividend persistence only in Latin American companies that most manage theirs earnings, which leads us to assume that firms with high earnings management are more likely to have artificial dividend persistence.

Keywords: Dividend payout, Discretionary accruals, Quantile regression, Latin America.

1. Introduction

Different studies in the financial literature have investigated the distribution of profits by companies. The product of this distribution is called dividend, and, in this study, we consider it like the total volume of profits distributed to shareholders, corresponding to dividends, share repurchases and interest on net equity, the latter being common in the Brazilian market. The discussion about dividends began with the Dividend Relevance Theory (Lintner, 1956; Gordon, 1963), which broadly states that the distribution of profits is a factor of relevance in the company's valuation. The assumed view is that decisions to retain corporate profits rather than distribute them would be riskier for the investor, who does not know whether these retained earnings will be applied to good projects that will generate future capital gains.

This argument is also supported by the Bird-in-Hand Theory, which assumes that the investor believes that it is better to have a bird in hand now, which would be the dividends received, than capital gains in the future, which represents uncertainty of a possible increase in their equity in the future. Moreover, this theory also supports the argument that investors prefer receiving dividends rather than giving up their pay in current periods.

On the other hand, there is the Dividend Irrelevance Theory (Miller & Modigliani, 1961). The irrelevance of dividends presupposes that distributions of profits to shareholders have no relevance in the firm's valuation. This theory is supported by the argument that investors and shareholders do not mind giving up dividends in the current period for future capital gains, since the valuation of the company's stock in the future would compensate for the abdication of receiving dividends in the current period. Therefore, the policy of dividend distribution would be irrelevant.

Raising the dividend payments without being sure that profits will increase continuously would be unwise, since there would be a possibility that dividends would be reduced in the future, which would provoke discontent among shareholders (Marsh & Merton, 1987). On the other hand, to keep shareholders satisfied, managers can preserve certain levels of dividend payments on a constant basis, making the distribution of dividends persistent over the periods, since dividing such dividends would not be a decision acceptable to the shareholders (Chan, Powell, Shi, & Smith, 2016).

In this sense, Chan *et al.* (2016) argue that dividends are more smoothed than results, and so are highly persistent. Therefore, firms are likely to maintain their dividend volumes, only increasing the volume of profits distribution if earnings show significant increases, which make profits more volatile than dividends. Consequently, companies make partial adjustments to dividend payments because of recent changes in profits. Thus, the idea is that a greater change in dividends, in relation to the previous change of profits, would be a clear signal that managers would be more confident about the continuous change in profitability (Silva, 2008).

In this context, we can see that profits may be a key for investors to decide whether to invest or not to invest in a company. Therefore, when analyzing the economic situation of a firm, one of the information that is generally more relevant to the users of the accounting information is the reported profit, which is considered as the first source of information for making investment decisions (Brown, 1971).

Profits are elements of good business results, and usually influence the investment decisions. And this influence of a firm's economic performance more sharply on investor decision-making is called "earnings fixation", which refers to investors' fixation on company results, more specifically in the valuation of reported results (Elliot, Hobson & Jackson, 2011). For this reason, since the earnings persistence as the dividend persistence matter to investors.

In addition, earnings can be used, among other forms, as a guide for conducting firms themselves, in the direction of their business. In this scenario, earnings management has become a practice widely used by managers to influence the perception of the stock market (Healy & Whalen, 1999). This is because the search for shareholders for better results, especially for profit, as they are normally associated with dividend policies, can be a determining factor for managers to manipulate the calculation of accounting results, as a way for them to be more profitable which would be the actual results.

On the other hand, investors' fixation on earnings may represent a growing risk to them, due to the susceptibility of results to possible manipulation, since manager's motivations are not always directed only to the interests of shareholders. Healy and Whalen (1999) argue that the motivations range from reaching the manager's own private interests, especially when his compensation is directly linked to the firm's performance (incentive contracts, compensation, among others), until the reduction of the payment of taxes (Hanlon & Heitzman, 2010).

Within this context, earnings can be managed to obtain profits that offer more persistent dividends, that is, in the same trend, thus achieving a higher level of shareholder satisfaction. But in return for this satisfaction, managers may be destroying value in the company by generating private benefits, especially when they are also shareholders of the firm, because they have greater incentives to manage results and maintain the dividend persistence. Over time, paying constant dividend levels may prevent the firm from investing in new projects and stop adding value to the business. In this context, the objective of this study is to investigate the relationship between the existence or not of the dividend persistence and the practice of earnings management in main capital markets of Latin America.

2. Literature Review

2.1. Dividend Payments and Persistence

Dividend payments in any company are usually tied to the investment policy adopted by the firm. This fact is justified because the option to distribute profits or not, as well as the increase or decrease of these distributions, can imply in a negative market reaction, with respect to the stock value (Lintner, 1956). And, considering that current increases in profits cannot be followed by current increases in dividends, Chan *et al.* (2016) argue that, in line with the concept of permanent profits introduced by Marsh and Merton (1987), if there is no tendency for permanent increases in profits, increases in dividend payments can be suspended frequently.

Since suspensions or reductions of dividend payments would cause dissatisfaction among investors, who do not respond favorably to the dividend cuts, such circumstances may lead to the firm's management to smoothing the dividends over the periods, in relation to the results, making them more persistent (Chan *et al.*, 2016). In this context, the earnings persistence is considered in the literature as a desirable and relevant factor for the prediction of future results, as well as for the evaluation of assets more effectively (Paulo, 2007), since when it is possible to predict future results by means of past results, and these forecasts are minimally disrupted by the expected values, it can be considered that the accounting information has better quality (Dechow & Schrand, 2004).

In parallel with earnings persistence, we must also consider its volatility. When earnings are volatile, the forecast of firms' future cash flows is compromised, since earnings volatility is inversely related to their persistence, i.e., the more volatile the earnings, the less persistent it is (Dichev & Tang, 2009). These authors also claim that earnings volatility may be tied to earnings management as firms smooth their earnings so that the firm's performance is more predictable. In turn, the earnings can also be managed so that the dividends are also persistent.

For La Porta, Lopes-de-Silanes, Shleifer and Vishny (2000) the dividend persistence ensures the firm a reputation for moderation of shareholder wealth, where it is assumed that

the dividend payments replace a good protection to them. In addition, managers need to maintain access to capital markets, justifying once again the reason why the firm seeks to preserve this reputation related to the dividend payments (La Porta *et al.*, 2000), that is, keeping them persistent over the periods.

Ratifying La Porta *et al.* (2000), evidence from d'Udekem (2014) in banking institutions, especially in times of financial crisis, indicates that the dividend persistence preserves the banks' reputation in the market. This signals to the market an idea that even in times of crisis the firm does not fail to maintain a constant dividend level, which suggests the robustness of its financial performance.

Thus, dividend persistence may be directly linked to the definition of the firm's policies of distribution of profits, influencing dividend decisions such as "if they should pay", "how much they should pay" and "how they should pay". This volume of payments to shareholders indicates the so-called "dividend payout" (or just payout) of the firm, which is the percentage derived from the relationship between the volume of profits distributed to the shareholders and the total profits obtained by the firm. According to Silva (2008), the dividend payout is one of the ways of measuring the volume of dividend payments most used by researches in the financial literature.

Regarding dividends payments, the most common way to remunerate shareholders is through cash payment (Silva, 2008). In this situation, a certain value of the profits or a percentage applicable to them is equivalent to the outflow of monetary resources to pay the compensation of the shareholders. However, in the Brazilian context, there is also the payment of cash dividends calculated by interest on net equity, which is percentage remuneration on the shareholders' equity accounts, representing a kind of monetary correction of the equity value of the firm. But its accounting treatment is like that of the dividend, differing only in the tax aspect, according to Brazilian legislation.

In another broader picture, there is another way of remunerating shareholders: the share repurchases. This type of remuneration consists of the firm repurchasing its own shares, reducing the total number of shares outstanding. According to Dittmar (2000), share repurchases are preferable to dividend payments, since in the share repurchases the firm is not conditioned to always be buying its own shares, whereas dividends incur a regular obligation.

Still on the dividend payments it is important to point out that it is often determined by the policy for distribution of profits established in the firms and that, therefore, can be influenced by several factors, among which stand out, for the purposes of this study: profitability, firm size, growth opportunity and indebtedness of the firm.

Profitability has a positive relation with the dividend payments, as firms tend to increase dividend payments when their profitability increases (Han, Lee, & Suk, 1999; Fama & French, 2001; Oza, 2004; Jabbouri, 2016). Size also has a positive relation with the dividend payments, since the larger the firm tends to be, the greater the dividend volume distributed to the shareholders, since the firm will need less retention of profits for reinvestment with the growth objective (Deangelo, Deangelo, & Stulz, 2006; Al-Kuwari, 2009; Jabbouri, 2016).

The growth opportunity has a negative relation with the payout, since firms with greater growth opportunities have greater needs to finance their expansion with retention of profits (Chae, Kim, & Lee, 2009; Chay & Suh, 2009; Cheng, Cullinan & Zhang, 2014). This is also the tendency of firms with higher indebtedness, since they tend to pay fewer dividends due to the reduction of their profits by the financial expenses originated by the existing indebtedness (Deangelo *et al.*, 2006; Al-Kuwari, 2009; Jabbouri, 2016).

In this perspective, there is still one factor that can be determinant for these dividend payments to be changed, which is the discretionary management intervention on the firm's results. This intervention, discussed in the next section of this study, may even condition the

dividend persistence, since the earnings can be managed to a greater or lesser extent to maintain the persistent dividends, according to the interests of the firm.

2.2. Earnings Management

Earnings management, in the broadest sense, is conceptually approached as a procedure to change the accounting results presented by a firm during its calculation process, as permitted by the accounting legislation itself, regarding the adoption of accounting practices applicable to (Amat & Gowthorpe, 2004). For Healy and Whalen (1999), this process of change in accounting results stems from the managers' subjective attitude in exercising judgment on certain financial information for misleading investors regarding the firm's actual economic performance.

Giroux (2004) and Matsumoto and Parreira (2007) complete this definition by stating that the change in the accounting numbers serves to reach some end, which is determined by the managers of the firms, using discretionary accounting practices to change the results, in accordance with applicable accounting principles and standards, as well as using operating activities.

In this sense, Damodaran (2012) states that firm managers can manage the firm's earnings because they consider that the market tends to reward the firm with better value due to the good results, being more predictable, as well as for the managed earnings to exceed expectations, such as financial analysts. To do so, for firms or investments valuation, financial analysts generally perform reconciliations in the accounting earnings reported by the firm being evaluated.

The idea considered by analysts is that these earnings went through a process of judgment, that is, of managers' choices, thus not revealing the real economic and financial performance of the firm and, consequently, the real value added or destroyed to shareholders by the firm (Damodaran, 2012). Thus, Cupertino and Martinez (2008) observe that when earnings are used as a way of measuring the performance of a firm's management, there are additional incentives for managers to manage them (inflated).

Paulo (2007) lists some of these incentives, among which are: to protect the firm from negative effects on the prices of its stocks at the time of the announcement of accounting losses; balance the results with analysts' forecasts; and reduce the earnings volatility to maintain earnings growth uniformly. Therefore, managers' discretionary decisions may make the reported earnings volatile, which may impact the decisions inherent in the distribution of profits, since dividend policies may be conditional on reported earnings. Once again, discretionary decisions may also make the reported earnings by the accounting divergent from the real earnings of the firm, affecting not only the firm's dividend policy but, according to Martinez (2001), impacting the firm's economic performance and the prediction of their future cash flows.

The future cash flows correspond to a breakdown of earnings, which is the sum of the cash flows with accruals (Dechow, Kothari, & Watts, 1998). Accruals, in turn, are characterized as one of the methods usually used in the detection of earnings management through accounting choices. Conceptually, accruals reflect the difference between the accounting result for the period (accrual basis) and cash flows (cash basis), assuming the role of adjusting cash flows and the accrual regime (Paulo, 2007).

The accrual basis is of great importance to the investors because it neutralizes the firm's cash flows, which is more useful to the investors than the cash flow (Dechow & Skinner, 2000). However, since in firms the differences between accrual and cash basis are recurrent, accruals require estimation and are therefore subject to errors (Dechow & Scharand, 2004). And these errors, or accruals' discretion, correspond to intentional errors that are tied to the

earnings manipulation, and their existence reflects in failures in the measurement of assets, since they are momentarily measured by unrealistic values (Paulo, 2007).

When the accruals are manipulated, in addition to changing the earnings of the current year, the future earnings also change, and therefore, it is expected that these overloaded or under loaded earnings will be reversed at some point (Martinez, 2008). Thus, the accruals' discretion in earnings can influence the earnings persistence of the firm and, consequently, influence the dividend persistence. This is ratified by Srikanth and Prasad (2015), who assert that dividend-paying firms tend to maintain a constant record of distribution of profits and for this, try to avoid large swings in these payments.

In a study with Indian firms, Srikanth and Prasad (2015) found, through discretionary accruals estimates, that the distribution of profits of these firms was affected by the earnings management. Thus, according these authors, it is likely that accounting earnings will be managed to affect the dividend payments. Based on this, we expanded this hypothesis and carried out our study on firms that are part of the emerging markets of Latin America.

2.3. Hypothesis Development

Based on the literature review, the first hypothesis of this study is based on the findings of Al-Najjar (2009), whose results indicate that the behavior of corporate dividends tends to have target rates of payments, and that these rates fit the percentage of payments, making the dividends persistent over the periods. Thus, it is believed that:

H₁: Firms shows persistence in the dividend payments in the main capital markets of Latin America.

The second hypothesis considers that the earnings management can be determinant in the dividend payments of the firms. Daniel, Denis and Naveen (2008) document that firms' managers tend to manage their earnings upwards when they are below expected dividend levels. And to that end, the earnings indicate that managers treat the level of expected dividends as a threshold for the earnings management. Rodrigues Sobrinho, Rodrigues and Sarlo Neto (2014) analyzed Brazilian firms and found that firms with higher dividend payout managed earnings also at higher levels. In these firms, the dividend persistence presented a positive and significant signal with discretionary accruals. Therefore, it is assumed that:

H₂: Firms with greater indications of earnings management tend to have greater persistence in dividend payments.

3. Method

Our sample is composed by firms that have stocks traded in the main stock exchanges of Latin America from 2001 to 2015 that have their financial information available in the Thomson Reuters database (Eikon). All financial information was collected in United States dollars (USD). Data were initially collected from 1,407 companies distributed among 10 countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Peru and Venezuela. However, firms that did not have information on at least one variable analyzed in each year were excluded from the sample, since this would make it impossible to estimate the models. Financial companies were also excluded, as they have specificities in their capital structure that influence their level of indebtedness, which would create a bias in our analysis, and could compromise the results of this study.

Thus, after all exclusions, the final sample is made up of 364 companies (1,532 observations-years) from 9 countries: Argentina (41), Bolivia (1), Brazil (87), Chile (97), Colombia (27), Costa Rica (4), Mexico (32), Peru (66) and Venezuela (9). Only Ecuador was

not kept in the final sample because it did not present any firm with sufficient information for analyzes.

It is important to highlight that the main reason for the reduction of the initial sample was the variable about “dividends”, since most firms did not disclose dividend information in the years analyzed, either because they did not pay dividends or because they had losses in the most periods. However, we maintained in the sample the firms that presented negative dividend payout, that is, that even presenting losses (net loss); they distributed dividends for some years, because this study has the purpose of investigating the dividend persistence.

3.1. Models and Variables

In the composition of the final sample we observed the existence of heteroskedasticity among the firm’s variables, using the Wald test that indicated the rejection of the null hypothesis of absence of heteroscedasticity ($p < 0.001$). Therefore, we chose the use of quantile regression models in the three main quantiles (0.25, 0.50 and 0.75) for the estimates of Equations 2, 3, 4 and 5. According to Ohlson and Kim (2014) this type of model has robustness to the presence of heteroscedasticity, since the relations between the variables are tested in the conditional quantiles.

Therefore, we do not need to control the presence of extreme values in the sample (outliers), since this model allows the analysis of the entire sample distribution, not just the conditional average. Thus, we were able to capture more information from the all sample, including the existing outliers.

To reach the objective proposed in this study, we followed a sequence of estimates. In the first moment we measured the dividend payout of the firms (total of dividend payments, such as dividends, share repurchases or interest on net equity) and then we estimate the earnings management through the model Dechow *et al.* (2012). In the third moment we verified the influence of the earnings management on the dividend payout of the firms, according to Equation 3. At this moment, for estimating the quantile regressions for the dividend payout, we used as proxy for earnings management the discretionary accruals estimated for the median from Equation 2.

In the fourth moment we verified the existence of the persistence of dividends through the model of Lintner (1956). And, in the fifth, we analyze the relationship between the dividend persistence and the earnings management.

3.1.1. Dividend Payout Calculation

We calculate the percentage of Dividend Payout (DP_{it}) of each firm i in year t , where DP_{it} is the result of dividing the sum of dividends (DIV_{it}), share repurchases (SR_{it}) and interest on net equity (INE_{it}) by the net income (NI_{it}) reported by the firm in each year, according to Equation 1.

$$DP_{it} = \left[\frac{DIV_{it} + SR_{it} + INE_{it}}{NI_{it}} \right] \times 100 \quad (1)$$

3.1.2. Earnings Management Estimation

To estimate the earnings management, we use the Dechow *et al.* (2012) model, which adjusts the Modified Jones model by including lagged accruals to capture their natural reversal in subsequent periods. These authors have shown that this model has increased the power of the earnings management detection test, reducing the failures caused by poor specification of previous models. For this study we assume the earnings management as the residuals of Equation 2.

$$TAc_{it} = \alpha_0 + \alpha_1 \left(\frac{1}{TA_{it-1}} \right) + \alpha_2 (\Delta REV_{it} - \Delta REC_{it}) + \alpha_3 (PPE_{it}) + \alpha_4 (TAc_{it-1}) + \alpha_5 IFRS_{jt} + \alpha_6 FC_{it} + \varepsilon_{it} \quad (2)$$

Where, for every company i in year t , TAc_{it} is the total accrual weighted by its total assets at the end of period $t - 1$; TA_{it-1} is the asset in period $t - 1$; ΔREV_{it} is the change in revenues from year $t - 1$ to year t , weighted by TA_{it-1} ; ΔREC_{it} is the change in receivables from year $t - 1$ to year t , weighted by TA_{it-1} ; PPE_{it} is the gross property, plant, and equipment, weighted by TA_{it-1} ; $IFRS_{jt}$ is a dummy variable to control the adoption of the International Financial Reporting Standards (IFRS), assuming value 1 from the years of mandatory adoption in the country, and 0 otherwise; FC_{it} is a dummy variable for the Subprime financial crisis, assuming value 1 in the year 2008, and 0 otherwise; and ε_{it} is defined as the discretionary accruals.

Two additional factors were considered in relation to the Dechow *et al.* (2012) model. The first was to include a dummy to control the effect of the mandatory migration of local accounting standards from each country to the International Financial Reporting Standards (IFRS). The IFRS adoption may lead to changes in the measurement, recognition and disclosure, reflecting in the firms' financial reports, as verified by Pelucio-Grecco, Geron, Grecco and Lima (2014). These authors verified that the IFRS adoption had a restrictive effect on the earnings management.

The second, considering that during the period covered by this research (2001 to 2015) there was a world-wide financial crisis, the Subprime crisis, we consider that it may have affected the results of the firms and, at the same time, their cash flows. We took the year 2008 as a reference because it was marked by the economic recession caused by the discontinuity of financial institutions that granted mortgage loans to investors who did not have or would not be able to liquidate them from the moment the interest rate increased (Bresser-Pereira, 2009). Thus, we added a dummy variable to verify if this financial crisis influenced the accruals of the firms.

Thus, from Equation 2, we take the residuals from this equation as a proxy for earnings management. We raise these residuals squared (ε_{it}^2) to identify the volume of management, regardless of whether it generated a positive or negative accrual (because it tends to reverse in next periods). This procedure was adopted because our interest is the magnitude of earnings management, that is, which companies were the ones that managed the most, not the way in which firms practice this management (if more or less).

3.1.3. Influence of Earnings Management on Dividend Payout

To analyze the influence of the earnings management (EM) on the dividend payout (DP), we only try to control specific factors that may interfere with this relationship. Thus, we used as control variables in the analysis: Return on Equity (ROE), Growth Opportunity (MB), Indebtedness (IND), Firm Size ($SIZE$) and Financial Crisis (FC).

For the measurement of profitability, we use the Return on Equity (ROE), which corresponds to the ratio between Net Income in year t and the Equity in year $t - 1$. To measure the growth opportunity, we use the market-to-book (MB) index, since an index greater than 1 indicates that the market is willing to pay for the company more than its equity value, since it sees in it an opportunity for growth not yet reported in its accounting. According to Chay and Suh (2009), the higher the MB , the lower the proportion of distributed dividends, as firms with greater growth opportunities tend to distribute smaller dividend volumes because of their investment needs. The MB corresponds to the ratio between the market value of the firm i on the date of the last closing price of the year t , on the book value of its equity in year t .

The Indebtedness (*IND*) was measured by the ratio of total short- and long-term debt to total assets at the end of year t , multiplied by 100 to be expressed as percentage. The firm size (*SIZE*) was represented by the natural logarithm of the total assets value at the end of year t . We expect that the larger the firm, the greater its distribution of profits, because it requires lower profit retention for growth (Deangelo *et al.*, 2006; Al-Kuwari, 2009; Jabbouri, 2016). Finally, we consider that the existence of a financial crisis can reduce the firm's profits and, consequently, reduce its dividend payments (Bresser-Pereira, 2009). As in Equation 2, the financial crisis (*FC*) in Equation 3 assumes the same parameters: value 1 for the year 2008 and 0 for the other years.

To verify the relation of the dividend payments with earnings management, controlling the factors mentioned above, we estimate the Equation 3.

$$DP_{it} = \alpha_0 + \alpha_1 EM_{it} + \alpha_2 ROE_{it} + \alpha_3 MB_{it} + \alpha_4 IND_{it} + \alpha_5 SIZE_{it} + \alpha_6 FC_{it} + \varepsilon_{it} \quad (3)$$

Where, for every firm i year t , DP_{it} is the Dividend Payout index; EM_{it} is the square of the estimated residuals in Equation 2 for the median quantile; ROE_{it} is the Return on Equity; MB_{it} is the market-to-book index; IND_{it} is the indebtedness; $SIZE_{it}$ is the natural logarithm of total assets; FC_{it} is the dummy indicative of the financial crisis in 2008; ε_{it} is the error term of the model.

3.1.4. Dividend Persistence Estimation

As a fourth step of our method, we performed an analysis of the existence of the dividend persistence. Lintner (1956) argues that dividends tend to be more persistent than earnings, because earnings are usually the starting point of management to consider whether dividends should change. Thus, management has a greater influence on dividends than on earnings. In this sense, management has a greater influence on dividends than on earnings. To identify the dividend persistence, we use the model of Lintner (1956), commonly used in the relevant literature, as explained in Equation 4. Additionally, as special feature of this work, we include the financial crisis variable (*FC*). The dependent variable of this model is the dividend payout (*DP*), previously calculated in Equation 1.

$$DP_{it} = \phi_0 + \phi_1 NI_{it} + \phi_2 DP_{it-1} + \phi_3 FC_{it} + \varepsilon_{it} \quad (4)$$

Where, for every firm i in year t , DP_{it} is the dividend paid, represented by the Dividend Payout ratio; NI_{it} is the Net Profit; DP_{it-1} is the Dividend Payout ratio in year $t - 1$; FC_{it} is a dummy for Financial Crisis, assuming value 1 in year 2008, and 0 in other years; and ε_{it} is the error term of the model.

The expectation for the Lintner (1956) model is that the coefficient $\phi_2 > 1$ (dividend persistence) is positive and significant, i.e., that the dividend paid in year $t - 1$ (DP_{it-1}) explains the dividends paid in the current year (DP_{it}).

3.1.5. Dividend Persistence and Earnings Management

The fifth step of this study verifies the dividend persistence in an environment with earnings management. In this analysis we captured the earnings management estimated in Equation 2 for the median quantile (0.50). Then, the residuals from that model (discretionary accruals) were squared (ε_{it}^2) to indicate the volume of results management. Next, we divided the sample into two parts, from the median of the earnings management volume (ε_{it}^2), and we created a dummy variable (*DEM*) that assumed the value 1 when $\varepsilon_{it}^2 \geq$ median of this variable,

and value 0 otherwise. In this sense, we expect that firms that have greater indications of earnings management present greater dividend persistence.

In this way, we used the Lintner (1956) model, again, but we made a second adaptation, this time including a dummy for greater earnings management (DEM). This variable was interacted with the other variables of the model, as presented in Equation 5, so that we control its effect on the dividend persistence. Thus, we expect that the coefficient ϕ_6 , which represents the dividend persistence between firms with greater earnings management, is positive, significant and greater than the coefficient ϕ_2 (for firms with lower earnings management). That is, we assume that $\phi_6 > \phi_2$.

$$DP_{it} = \phi_0 + \phi_1 NI_{it} + \phi_2 DP_{it-1} + \phi_3 FC_{it} + \phi_4 DEM_{it} + \phi_5 (NI_{it} \times DEM_{it}) + \phi_6 (DP_{it-1} \times DEM_{it}) + \phi_7 (FC_{it} \times DEM_{it}) + \varepsilon_{it} \quad (5)$$

Where, for every firm i in year t , DP_{it} is the dividend paid, represented by the Dividend Payout ratio; NI_{it} is the Net Profit; DP_{it-1} is the Dividend Payout ratio in year $t - 1$; FC_{it} is a dummy for Financial Crisis, assuming value 1 in year 2008, and 0 in other years; DEM_{it} is a dummy for earnings management volume, assuming value 1 for firms with $\varepsilon_{it}^2 \geq \text{median}$ of this variable, and value 0 otherwise; and ε_{it} is the error term of the model.

4. Results

Table 1 shows the descriptive analysis of the variables investigated in this study. The only variable not included in Table 1 is earnings management, because discretionary accruals have been captured in three different quantiles (0.25, 0.50 and 0.75) and their numbers have little meaning in an individual analysis.

We can observe that there is great dispersion in the data, giving evidence of heterogeneity in the data, which were confirmed next. This heterogeneity strengthens the arguments for using quantile regressions, without the need for specific treatment for outliers. The Net Income, Equity and Total Assets variables are represented by the logarithm of their values in US dollars. We observed that these variables present a high standard deviation, indicating that firms differ significantly between them. Therefore, we take as a reference the median to characterize the sample. The median of the annual Net Income of firms was about USD 14.5 million. The median of Equity was approximately USD 180.0 million. And the median of Total Assets was about USD 414.6 million.

Table 1.

Descriptive statistics of analyzed variables. 2001-2015.

Variables	Mean	0.25 Quantile	0.50 Quantile	0.75 Quantile	Minimum	Maximum	Standard Deviation
NI_{it}	8.00	5.78	7.17	7.95	*	9.93	8.57
E_{it}	9.20	7.63	8.26	8.75	4.59	9.34	8.57
DP_{it}	1,184.90	0.00	14.36	114.01	-2,690,827.00	5,017,442.00	164,518.00
DP_{it-1}	2,296.06	0.00	14.76	131.98	-1,748,335.00	5,017,442.00	148,623.30
ROE_{it}	6.29	1.40	8.17	15.72	-3,605.35	393.07	99.10
MB_{it}	1.04	0.24	0.89	1.96	-1,439.44	521.91	45.05
IND_{it}	53.53	34.47	51.53	66.60	0.02	401.38	34.87
$SIZE_{it}$	9.32	7.99	8.62	9.25	5.24	10.84	9.68

Note: for every firm i in year t , NI_{it} is the logarithm of the annual Net Income (* minimum = USD -1,401,896); E_{it} is the logarithm of the Equity; DP_{it} is the Dividend Payout ratio; DP_{it-1} is the Dividend Payout ratio in year $t - 1$; ROE_{it} is the Return on Equity; MB_{it} is the Market-to-book index; IND_{it} is the Total Indebtedness rate; and $SIZE_{it}$ is the Firm Size, given by the logarithm of your total asset.

Also, it is possible to observe the presence of negative Net Profit (Loss), and for this reason we do not present the logarithm for the minimum value of this variable. However, even though it had suffered losses, some companies maintained the payment of dividends, which

culminated in an extremely negative dividend payout, reaching a minimum value of -2,690,827.00%. We also verified that the dividend payout of year t (DP) in the 0.25 quantile was 0 (zero), which implies that in smaller quantiles are concentrated the firms that had negative payouts (less than zero), that is, about 1/4 of the sample paid dividends even though it showed a loss in any of the years studied.

We could also verify that the median of dividend payout was 14.36%, considering only the firms that distributed dividends over the analyzed period. The median of the Return on Equity (ROE) was 8.17%, considering only the firms with positive equity, since we excluded from the sample those with negative equity. The median of the Market-to-book (MB) was 0.89, indicating that in the analyzed period the Latin American firms had a market value lower than their book value. And the median of the Indebtedness (IND) was 51.53%, showing that more than half of the total assets of these firms is financed by debt.

When we separate the sample by country, the standard deviations of the variables are reduced, because differences between firms are diminished. In this way, we present in Table 2 the median values of these variables in each country. We can note that both the highest Net Income (NI) median and the highest Equity (E) median are among Bolivian firms. However, we recall that the Bolivian sample is made up of only one company that presented data available at our base. Therefore, these figures do not represent the reality of that country. So, we highlight the companies in Mexico, with higher Net Income and Equity medians, followed by Brazilian companies. These countries also have the largest economies among all the members of our sample.

Analyzing the dividend payout (DP), we can see that the largest median belongs to Costa Rican companies (147.31%), followed by Bolivian companies (52.66%) and Mexican companies (37.29%). The highest median for Return on Equity (ROE) was also for Costa Rican companies (12.87%), followed by Argentine companies (12.28) and Bolivian companies (8.62%). Overall, higher ROE indicates higher DP .

Table 2.

Median of variables by country. 2001-2015.

Countries	NI_{it}	E_{it}	DP_{it}	DP_{it-1}	ROE_{it}	MB_{it}	IND_{it}	$SIZE_{it}$
Argentina	6.89	7.96	16.75	18.81	12.28	1.16	62.75	8.57
Bolivia	7.79	8.94	52.66	70.70	8.62	1.24	19.20	9.04
Brazil	7.42	8.69	16.79	16.18	8.08	1.09	57.76	9.02
Chile	7.10	8.21	7.89	8.53	7.74	0.92	49.17	8.43
Colombia	7.47	8.62	10.40	13.38	7.01	0.56	38.50	8.80
Costa Rica	6.94	7.91	131.71	147.31	12.87	0.47	52.32	8.21
Mexico	7.65	8.90	37.29	21.97	8.36	1.64	54.14	9.23
Peru	6.88	7.99	17.45	20.29	7.38	0.42	47.75	8.25
Venezuela	6.39	8.01	0.71	4.90	3.89	0.19	45.19	8.29

Note: for every firm i in year t , NI_{it} is the logarithm of the annual Net Income; E_{it} is the logarithm of the Equity; DP_{it} is the Dividend Payout ratio; DP_{it-1} is the Dividend Payout ratio in year $t - 1$; ROE_{it} is the Return on Equity; MB_{it} is the Market-to-book index; IND_{it} is the Total Indebtedness rate; and $SIZE_{it}$ is the Firm Size, given by the logarithm of your total asset.

The largest median of Market-to-book (MB) was for Mexican (1.64) and Argentine (1.16) companies. The country with the lowest median was Venezuela (0.19), which indicates that the market is skeptical when pricing firms in that country, a fact that can be influenced by the serious political problems that the country faces. The firms with the highest Indebtedness (IND) median are the Argentinas (62.57%), followed by Brazilians (57.75%) and Mexican (54.14%). As for the Size of its total assets ($SIZE$), Mexican companies have the largest median (9.23), followed by Bolivian (9.04) and Brazilian (9.02).

To verify the level of association between the variables studied, we analyzed their correlation coefficients, presented in Table 3. The Net Income (NI) did not show a significant correlation with any of the dividend payout variables, not even with the discretionary accruals estimated by the quantile regressions. Based on this analysis, we noted that the Subprime crisis, alone, did not affect the Net Income of the analyzed firms.

The current Dividend Payout presented (DP_{it}) a positive and significant correlation with the past Dividend Payout (DP_{it-1}) (0.2426), which shows evidence of dividend persistence in the analyzed sample, like the findings of Al-Najjar (2009). On the other hand, the first evidence of the bivariate relationship between dividend payout (DP) and earnings management (EM) revealed that the correlation coefficients are not significant, either with the current or past dividend payout, or with the discretionary accruals estimated in the lower, middle or higher quantile.

Table 3.

Correlations between dividends, earnings management and crisis. 2001-2015.

Variables	NI_{it}	DP_{it}	DP_{it-1}	$EM_{it}^{0.25}$	$EM_{it}^{0.50}$	$EM_{it}^{0.75}$	FC_{it}
NI_{it}	1						
DP_{it}	-0.0018	1					
DP_{it-1}	-0.0038	0.2426***	1				
$EM_{it}^{0.25}$	-0.0287	0.0069	0.0056	1			
$EM_{it}^{0.50}$	-0.0234	-0.0056	-0.0033	0.9611***	1		
$EM_{it}^{0.75}$	0.0191	-0.0113	-0.0317	0.1299***	0.3373***	1	
FC_{it}	-0.0198	-0.0299	-0.0173	0.1147***	0.1100***	-0.2831***	1

Note: for every firm i in year t , NI_{it} is the logarithm of the annual Net Income; DP_{it} is the Dividend Payout ratio; DP_{it-1} is the Dividend Payout ratio in year $t - 1$; $EM_{it}^{0.25}$ are the discretionary accruals in the 0.25 quantile, represented by the square of the regression residuals; $EM_{it}^{0.50}$ are the discretionary accruals in the 0.50 quantile, represented by the square of the regression residuals; $EM_{it}^{0.75}$ are the discretionary accruals in the 0.75 quantile, represented by the square of the regression residuals; FC_{it} is a dummy for Financial Crisis, assuming value 1 in year 2008, and 0 in other years; and *** is significant at 1%.

Finally, we note that the residuals of the quantile regressions estimated in the three quantiles are positive and significantly correlational. Also, the Subprime crisis revealed that it had no influence on Net Income or Dividend Payouts (current and past) but had an influence on the earnings management. We can observe that the crisis presented a positive and significant correlation with the discretionary accruals of the firms that had a lower volume of DP (quantiles 0.25 and 0.50), but a negative and significant correlation with the firms with the highest volume of DP (0.75 quantiles). This suggests that during the financial crisis the firms that retained the greatest volume of earnings for growth, presenting lower dividend payout, increased their earnings management (supposedly to maintain their attractiveness in the market), while the firms that needed lower retention of earnings, with greater volume of dividends, presented lower volume of earnings management.

4.1. Regression Analysis

To estimate the level of earnings management of firms, we estimate three quantile regressions in the quantiles 0.25, 0.50 and 0.75, according to Equation 2. In Table 4 it is possible to observe that the difference between the variation of Net Revenues and Receivables ($\Delta REV_{it} - \Delta REC_{it}$) was positive and significant at 1% in all quantiles, where their coefficients corresponded to 0.1826 in the 0.25 quantile, 0.1217 in the 0.50 quantile and 0.1307 in the 0.75 quantile.

The gross property, plant and equipment (PPE_{it}) was significant only in the median quantile (0.50). In turn, Total Accruals for the previous year (TAC_{it-1}) were not statistically significant for the explanation of Total Accruals for the current year. The signs presented in all quantiles for this variable were negative, suggesting possible reversal of accruals in the

next period. However, since our results did not indicate significance, we cannot say that such an assumption is true.

The inclusion of the IFRS adoption in the model for the estimation of earnings management was significant at the level of 1% in the 0.50 and 0.75 quantiles. This indicates that this phenomenon is important for estimating of earnings management in the companies. Above all, we can observe that the IFRS adoption ($IFRS_{jt}$) had a negative impact on the Total Accruals of period t , which suggests that the IFRS adoption reduced the volume of earnings management, according to the evidence of Pelucio-Grecco *et al.* (2014) for the Brazilian capital market, the largest in Latin America.

The inclusion of a control for the Financial Crisis (FC_{it}) in the model was negative and significant in all quantiles, which implies that the existence of the Subprime financial crisis influenced the reduction of current total accruals. These findings converge with the evidence of Silva, Weefort, Flores and Silva (2014), who verified statistical significance of the financial crises inserted in the regression models to estimate discretionary accruals, and that the managers presented different behavior during the crisis periods. This behavior change is a possible explanation for the reduction of total accruals in periods of crisis.

Table 4.

Earnings management estimation. 2001-2015.

Variables	0.25 Quantile		0.50 Quantile		0.75 Quantile	
	Coefficient	t Statistic	Coefficient	t Statistic	Coefficient	t Statistic
Constant	-0.0619	-7.73***	0.0043	0.77	0.0832	8.93
$(1/TAC_{it-1})$	6,164.2000	0.39	-5,346.3520	-0.50	-16,148.6600	-0.89
$(\Delta REV_{it} - \Delta REC_{it})$	0.1826	4.29***	0.1217	4.14***	0.1307	2.63***
PPE_{it}	0.0126	1.94	0.0102	2.26**	0.0070	0.93
TAC_{it-1}	-0.1371	-1.16	-0.9588	-1.17	-0.1755	-1.27
$IFRS_{jt}$	-0.0112	-1.35	-0.0219	-3.84***	-0.0426	-4.42***
FC_{it}	-0.0297	-2.19**	-0.0446	-4.78***	-0.0573	-3.64***
Pseudo R ²	0.0154		0.0177		0.0178	

$$\text{Equation 2: } TAC_{it} = \alpha_0 + \alpha_1 \left(\frac{1}{TAC_{it-1}} \right) + \alpha_2 (\Delta REV_{it} - \Delta REC_{it}) + \alpha_3 (PPE_{it}) + \alpha_4 (TAC_{it-1}) + \alpha_5 IFRS_{jt} + \alpha_6 FC_{it} + \varepsilon_{it}$$

Note: for every company i in year t , TAC_{it} is the total accrual weighted by its total assets at the end of period $t - 1$; TAC_{it-1} is the asset in period $t - 1$; ΔREV_{it} is the change in revenues from year $t - 1$ to year t , weighted by TAC_{it-1} ; ΔREC_{it} is the change in receivables from year $t - 1$ to year t , weighted by TAC_{it-1} ; PPE_{it} is the gross property, plant, and equipment, weighted by TAC_{it-1} ; $IFRS_{jt}$ is a dummy variable to control the adoption of the International Financial Reporting Standards (IFRS), assuming value 1 from the years of mandatory adoption in the country, and 0 otherwise; FC_{it} is a dummy variable for the Subprime financial crisis, assuming value 1 in the year 2008, and 0 otherwise; and ** is significant at 5% and *** at 1%.

Table 5 presents the results of the estimates to identify the relationships between the dividend payout and the earnings management. According to the results found, the variable EM_{it} did not present clear results, presenting no statistically significant relation in any of the quantiles. Therefore, it is not possible to say that in Latin America the firms that manage their earnings to distribute greater volume of dividends (payout). This result can be identified among firms to own lower, middle and higher dividend payout. Thus, our results for the emerging markets in Latin America differ from those found by Daniel, Denis and Naveen (2008) for the United States market, where the authors found that firms tend to manage their results more when they fall short expected dividend levels.

On the other hand, the variable Return on Equity (ROE_{it}) was positive and significant at 1% in the first quantile (0.25). Thus, it is inferred that in firms with a lower payout volume, the increase in ROE implies an increase in the dividend payout, ie, 1.00% increase in ROE implies a 0.63% increase in the volume of distributed dividends. These evidences confirm the findings by Oza (2004) and Ahmed and Javid (2009), who also found a positive relationship

between these variables. In the quantiles 0.50 and 0.75 the influence of the *ROE* on the dividend payout was not identified. This indicates that firms that already have high dividend payout do not tend to increase them when *ROE* grows, which seems reasonable to us.

Regarding the Market-to-book (MB_{it}), we found a positive and significant relationship at 5% in the 0.25 quantile, and a positive and significant relationship at 1% in the 0.50 quantile. These results are not in line with those in the literature (Chay & Suh, 2009; La Porta *et al.*, 2000), which point to a negative relationship between the Market-to-book and the volume of distributed dividends. However, in the studies cited there is no differentiation of firms by the volume of their payouts. On the other hand, the positive relationship between the Market-to-book and the dividends payout found in this study was also found by Al-Najjar (2009) in Jordanian companies, suggesting that companies with high growth opportunities face different financing opportunities and pay more dividends.

Our findings suggest that in Latin America, at least between 2001 and 2015 for firms that distribute lower volume of dividends (with payout up to the median of 14.36%), dividend payout growth is positively related to growth opportunities of firms (*MB*). This result can be explained by the low *MB* identified in this period (median of 0.89). That is, the firms had, in the median, a market value lower than their book value. Thus, an improvement in its operating results may lead the company to distribute more dividends and, consequently, this improvement is also reflected by the market, which recognizes a growth opportunity in the firms (which positively reflects on its *MB*).

Still, these findings may be related to two possible explanations: (i) that in emerging markets in Latin America investors tend to value firms that prioritize the distribution of dividends, reflecting payout increases in their market value; or, yet, (ii) that firms with lower book values seek to maintain their attractiveness in the market by maintaining the payment of dividends, even if in dividend volumes lower than the median of the sample analyzed.

Table 5.

Quantile regressions for dividend payout and earnings management. 2001-2015.

Variables	0.25 Quantile		0.50 Quantile		0.75 Quantile	
	Coefficient	t Statistic	Coefficient	t Statistic	Coefficient	t Statistic
Constant	-232.7866	-3.24***	59.3895	2,70***	963,7149	5,05***
EM_{it}	2.2331	0.25	-0.1359	-0,05	-0,4305	-0,02
ROE_{it}	0.6301	8.22***	-0.0042	-0,18	0,0280	0,14
MB_{it}	0.4045	2.39**	0.3221	6,23***	0,4642	1,03
IND_{it}	-1.1850	-5.39***	-0.6053	-9,00***	-1,1115	-1,90*
$SIZE_{it}$	30.8137	3.71***	-1.0787	-0,43	-85,3139	-3,87***
FC_{it}	-3.6061	0.14	-5.4200	-0,67	-29,2910	-0,42
Pseudo R ²	0.0300		0.0200		0.0800	

Equation 3: $DP_{it} = \alpha_0 + \alpha_1 EM_{it} + \alpha_2 ROE_{it} + \alpha_3 MB_{it} + \alpha_4 IND_{it} + \alpha_5 SIZE_{it} + \alpha_6 FC_{it} + \varepsilon_{it}$

Note: for every firm *i* year *t*, DP_{it} is the Dividend Payout index; EM_{it} is the square of the estimated residuals in Equation 2 for the median quantile; ROE_{it} is the Return on Equity; MB_{it} is the market-to-book index; IND_{it} is the indebtedness; $SIZE_{it}$ is the natural logarithm of total assets; FC_{it} is the dummy indicative of the financial crisis in 2008; and * is significant at 10% and *** at 1%.

The indebtedness of firms (IND_{it}), given by the total debt divided by its total assets, had a negative and significant relation in all the quantiles of the distribution. In agreement with the studies of DeAngelo *et al.* (2006), Al-Kuwari (2009) and Jabbouri (2016), the level of firm's indebtedness is negatively influenced by the dividend payment in all quantiles. As shown in Table 5, the increase of 1.00% in debt tends to decrease the dividend payout between -1.19% and -0.61%, depending on the quantile analyzed, with the biggest effect on the firms of the 0.25 quantile. So, it is possible to affirm that the increase in the level of indebtedness of these firms diminishes their dividend payments.

Regarding the Firm Size ($SIZE_{it}$), we noticed that there was a significance relationship in the two extreme quantiles, and the effect change as the dividend payout volume increases. Among the firms with the lowest payout volume (0.25), the relation was positive and significant, with a coefficient of 30.8137. On the other hand, in the quantile of the firms that distribute the largest volume of dividends (0.75), the relation was negative and significant, with a substantially lower coefficient (-85.3139).

According to the literature, the larger firm size, the greater volume of dividends distributed to shareholders, as DeAngelo *et al.* (2006), Al-Kuwari (2009) and Jabbouri (2016). In this study, we noticed that only in the 0.25 quantile this trend can be observed. On the other hand, we observed that in the 0.75 quantile the increase in the size of the firms decreased their dividend payout. This result may indicate that larger firms, when they return or continue to grow, tend to reduce their dividend payout.

Finally, we note that the Subprime financial crisis did not show any significance in any of the quantiles, indicating that it did not have a significant impact on the distribution of firm dividends in Latin America. This may be an indication that dividends have been persistent even in the period of the crisis.

To test the first hypothesis of this research, that there is evidence of dividend persistence in the Latin American capital market, we estimate some adaptation of the Lintner (1956) model, which results are presented in Table 6. One of the variables proposed by Lintner's model is the Net Income (NI_{it}), which is expected to have a positive influence on the dividends in period t . However, we noticed that this variable was not significant in any quantile in this study. This result may have been influenced by the high number of firms with zero (zero) or negative payout (firms that distributed dividends even though they had losses).

Chan *et al.* (2016) argues that dividends are more smoothed in relation to earnings. In this way, it is probable that the dividend of the previous period ($t - 1$) influences the dividend payments of the current period (t), as found in the results of this study, considering there is a positive and significant relationship between the current dividend payout (DP_{it}) and the last dividend payout (DP_{it-1}) in all three quantiles, at the 1% significance level.

Table 6.
Quantile regressions for the dividend persistence. 2001-2015.

Variables	0.25 Quantile		0.50 Quantile		0.75 Quantile	
	Coefficient	t Statistic	Coefficient	t Statistic	Coefficient	t Statistic
Constant	-0.0361	-0.15	14.6797	6.88***	126.6867	8.80***
NI_{it}	4.7300	0.80	-1.8500	-0.35	-5.3600	-1.50
DP_{it-1}	0.0391	2.70***	0.0391	2,952.83***	0.0390	437.44***
FC_{it}	-0.8263	-1.09	-7.9373	-1.17	-30.4295	-0.66
Pseudo R ²	0,0123		0,1530		0,0181	

Equation 4: $DP_{it} = \phi_0 + \phi_1 NI_{it} + \phi_2 DP_{it-1} + \phi_3 FC_{it} + \varepsilon_{it}$

Note: for every firm i in year t , DP_{it} is the dividend paid, represented by the Dividend Payout ratio; NI_{it} is the Net Profit; DP_{it-1} is the Dividend Payout ratio in year $t - 1$; FC_{it} is a dummy for Financial Crisis, assuming value 1 in year 2008, and 0 in other years; and *** is significant at 1%.

In this context, we observe that, in fact, the dividend payment in the previous period have a positive influence on the dividend payment of the current period. For this reason, we can infer that these dividends are persistent ($\phi_2 > 1$), that is, they are explained by the previous dividends, both in firms with smaller, medium or larger payout. Based on this, we verified that hypothesis 1 (H_1) is confirmed for firms in Latin America.

Still in Table 6, we noticed that the financial crisis (FC_{it}) was not significant in any of the quantiles. We also made tests excluding the financial crisis of the estimated models and verified that in both cases (presence or absence of the FC variable) there was no change in the

relationships found. Therefore, it is possible to infer that the Subprime financial crisis did not affect the dividend persistence of the Latin American firms in the analyzed period.

Our last analysis aims to test the second hypothesis of this study that firms with greater indications of earnings management tend to have greater dividend persistence. In this sense, we create interactions of earnings management with the variables contained in the adapted model from Lintner (1956), according to Equation 5. For this, we constructed a dummy variable, assuming the value 1 when the earnings management volume was equal to or greater than the median of the residuals squared (equation 2), and 0 otherwise. Thus, from this point of the analysis, when the term “earnings management” is mentioned, it refers to this dummy (DEM). As we said in the method, we expect that the coefficient ϕ_6 , resulting from the interaction of the dividend payout with the earnings management ($DP_{it-1} \times DEM_{it}$), is positive, significant and greater than the coefficient ϕ_2 (DP_{it-1}). This is, $\phi_6 > \phi_2$.

According to Table 7, Net Income (NI) again was not statistically significant in any of the quantiles. As we argued in the analysis of Table 6, it is possible that earnings are not explanatory of the dividend payout because dividends from the previous period ($t - 1$) may exert a greater influence on current dividends (t) than current Net Income (NI). Also, because even though some losses were obtained, some firms continued to pay dividends. The same happened among the firms with the highest volume of earnings management, since it is possible to verify that the coefficient of the interaction $NI \times DEM$ was not significant in any quantile, indicating that even among the firms with the highest level of earnings management the Net Income still does not have influenced the dividend payments.

The dividend payment of the previous period (DP_{it-1}) continued in a positive and significant relation with the dividends of the current period (DP_{it}), in all quantiles, once again, ratifying the findings in the analysis of Equation 4, as well as the evidences of Lintner (1956) and Al-Najjar (2009). The strongest relationship is observed among the firms that pay the highest volume of dividends, that is, those that are concentrated in the 0.75 quantile, suggesting that the increase of USD 1.00 in the past dividends represents a growth of around USD 0.33 in current dividends.

Table 7.

Quantile regressions for dividend persistence and earnings management. 2001-2015.

Variables	0.25 Quantile		0.50 Quantile		0.75 Quantile	
	Coefficient	t Statistic	Coefficient	t Statistic	Coefficient	t Statistic
Constant	- 0.06	-0.12	19.24	5.87***	137.68	0.16
NI_{it}	3,480.00	0.31	-7,370.00	-0.98	-9,130.00	-0.04
DP_{it-1}	0.04	1,800.00***	0.03	2,707.70***	0.33	80.75***
FC_{it}	-1.58	-1.01	-10.67	-1.06	-80.47	-0.03
DEM_{it}	0.04	0.06	-8.16	-1.77*	21.72	0.02
$(NI_{it} \times DEM_{it})$	5,030.00	0.28	6,020.00	0.52	7,310.00	0.02
$(DP_{it-1} \times DEM_{it})$	-0.03	-1,218.63***	0.04	359.41***	0.81	70.11***
$(FC_{it} \times DEM_{it})$	1.47	0.66	10.24	0.70	207.61	0.05
Pseudo R ²	0.1280		0.1740		0.0321	

Equation 5: $DP_{it} = \phi_0 + \phi_1 NI_{it} + \phi_2 DP_{it-1} + \phi_3 FC_{it} + \phi_4 DEM_{it} + \phi_5 (NI_{it} \times DEM_{it}) + \phi_6 (DP_{it-1} \times DEM_{it}) + \phi_7 (FC_{it} \times DEM_{it}) + \varepsilon_{it}$
Note: for every firm i in year t , DP_{it} is the dividend paid, represented by the Dividend Payout ratio; NI_{it} is the Net Profit; DP_{it-1} is the Dividend Payout ratio in year $t - 1$; FC_{it} is a dummy for Financial Crisis, assuming value 1 in year 2008, and 0 in other years; DEM_{it} is a dummy for earnings management volume, assuming value 1 for firms with $\varepsilon_{it}^2 \geq$ median of this variable, and value 0 otherwise; and * is significant at 10% and *** at 1%.

As we can see in Table 7, the earnings management was significant only in the 0.50 quantile (at 10%), negatively impacting the dividend payouts. That is, among these firms the greater volume of earnings management tends to decrease the dividend payout. This evidence is like that found by Tong and Miao (2011), who found that firms that distribute more

dividends have better quality of their profits because they have a lower level of earnings management.

On the other hand, this evidence is different from the findings of Rodrigues *et al.* (2014) for Brazil, where firms with higher payout levels tend to manage their earnings positively more frequently. Since the earnings management direction (if more or less) has not been verified in this study, it may be that the long-term zero-trend of this management explains the non-management influence on dividends. In the other two quantiles (0.25 and 0.75) there was no significance, so, we cannot make more inference.

When the *DEM* dummy is interacted with the dividend payout from the previous period (DP_{it-1}), we find a significant relation in all quantiles, at the level of 1%. However, we expected that among the firms with the highest level of earnings management ($DEM = 1$) the dividend persistence would be positive in all quantiles, but in 0.25 quantile this relation was negative. In the other two quantiles (0.50 and 0.75) the relationship was positive and significant, as expected, indicating that greater earnings management is linked to the greater dividend presence.

When we compare estimated coefficients in Equation 5, we notice that the coefficient ϕ_6 is greater than ϕ_2 ($\phi_6 > \phi_2$) only among firms with the largest dividend payout ($quantile \geq 0.50$), and when the volume of earnings management is also greater than the median (so, $\phi_6 > \phi_2$ only if $DP > median$ and $DEM = 1$). Therefore, the hypothesis 2 of this study is confirmed only for firms with greater volume of dividend payout (above median). These findings agree with Chan *et al.* (2016).

As the financial crisis variable presented influence in the previous estimates, it was also analyzed in this model. However, as shown in Table 6, the results in Table 7 indicate that the crisis was again not decisive for the dividend payout level. In all three quantiles the *FC* was not significant. The same can be said when this variable is interacted with greater earnings management (*DEM*).

5. Conclusion

The main results of this study demonstrate that firms that distribute more dividends have greater earnings management, seeking to maintain the levels of their dividends persistent. Thus, our findings allow for the conclusion that dividends are more smoothed than earnings in Latin American companies. As evidence of this assertion, we can cite, once again, the decision of firms to choose to distribute dividends even in years with reported losses, which allows them to smooth their dividend payout and increase the dividend persistence. One possible explanation for this phenomenon is the interest of firms to remain attractive in the capital market, inclusive in periods of crisis.

Finally, we highlight the limitations of this study, such as not having considered the regulatory issues of each country, nor having dealt with the specific financial crises of each country during the analyzed period. However, we note that we did not have access to this information in our databases, in a secure way, and for that reason we decided to keep these variables out of the study. Above all, we note that these limitations do not invalidate the study. Thus, we highlight that it contributes to foster discussions about the dividend persistence in emerging markets in Latin America, which despite being a fertile field has been exploited less frequently than other markets. Our evidence points to an important means of shareholder remuneration in a region marked by local crises. Therefore, they are relevant as support to investors in their investment decision-making.

Finally, the findings of this study generated other questions regarding the lack of some particularities, and therefore we suggest future developments for this research: (i) to investigate the legislation pertaining to each country and how these standards may affect the dividend persistence by comparing these events between countries; (ii) to verify the specific

financial crises of each country and to analyze their influence on the dividend persistence, in the presence of earnings management; (iii) investigating how the way of earnings management (more or less) affects the dividend persistence of firms; and (iv) to verify the motivations that lead firms to seek greater dividend persistence, even in periods in which they have reported losses.

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